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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/723,549	11/27/2000	Brian Doege	23969-P001US	7916

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EXAMINER	
BARRY, CHESTER T	

ART UNIT	PAPER NUMBER
1724	

DATE MAILED: 11/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/723,549	DOEGE ET AL.	
	Examiner	Art Unit	
	Chester T. Barry	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-5,8-20,27,28,39 and 42-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *3,4,27 and 28* is/are allowed.

6)☒ Claim(s) *42 – 48, 5, 8, 14, 18, 39* is/are rejected.

7)☒ Claim(s) *9 – 13, 15 – 17, 19, 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Prosecution is reopened so that the patent to Gothreaux may be applied against some claims.

Claims 42 – 47, 5, 8, 14, 18, 39 are rejected under 35 USC Sec. 103(a) as obvious over Gothreaux in view of Lin. USP 5,928,514 to Gothreaux describes a method for treating a tank toilet system comprising the steps of:

(a) selecting any bacteria that is appropriate for the breakdown of water containing human waste (col 4, line 16; col 3 line 20), such as bacteria which are suitable for activated sludge processes (col 7 lines 8-12) [and a surfactant],

(b) charging the tank toilet system with flushing liquid,[1] and

(c) combining the bacteria and the flushing liquid. The step of combining the bacteria and flushing liquid occurs in the bioreactor 106, where the flushing liquid contacts bacteria supported or adsorbed on bed material 124 (col 4 lines 17-22). The step of combining the bacteria and flushing liquid also occurs in the holding tank 104. Residual bacteria which had not been removed from the holding tank 104 upon discharge of the contents of the holding tank 104 during the previous treatment cycle (col 5 lines 15 – 20) are combined with incoming flush water and waste (col 4 lines 17-22). The tank toilet system is an airplane (col 3 line 17) recirculation tank toilet system (col 2 line 41; col 4 lines 45-47, 58-62; col 5 lines 8-10). Gothreaux does not appear to describe selecting a surfactant and combining it with the flushing fluid and/or the bacteria.

USP 5,863,882 to Lin describes a liquid cleanser / sanitizer formulation suitable for cleaning and sanitizing toilet bowls from which waste is discharged to a holding tank (col 1 lines 9-20). Lin describes the problem of prior art alkaline or acidic cleanser / sanitizer formulations damaging the beneficial microorganisms in the holding tanks of toilet systems. Lin states that inhibition of the beneficial microbial activity is "clearly a disadvantage" (col 1 lines 29-33). Lin's solution to the is problem is a formulation of beneficial bacteria and surfactant (col 2 lines 20 – 29; col 5 lines 41-67) that prevents the growth of pathogens over the long term, seed the connecting drain lines and waste collection and treatment systems, and enhances the degradation of organic wastes (col 1 lines 45-54). In the combination, bacteria are combined with flush liquid upon addition of Lin's formulation to the toilet bowl. If the bowl is initially empty of liquid, then the bacteria is combined with the flush liquid immediately upon flushing of the toilet.

Given the nature of toilet bowls generally, i.e., a depository of pathogenic-bearing human waste, it would have been obvious to have cleaned and sanitized Gothreaux's aircraft toilet bowl. As suggested by Lin, it would have been obvious to have used a cleanser / sanitizer that was not harmful to the beneficial organic-waste degrading bacteria in Gothreaux's bioreactor and holding tank. Accordingly, it would have been obvious to have used Lin's bacteria / surfactant formulation to cleanse and sanitize Gothreaux's toilet because Lin's formulation includes beneficial bacteria which do not harm Gothreaux's beneficial bacteria and which themselves foster organic waste degradation while at the same time preventing the growth of undesired pathogenic

[1] At col 3 lines 22 – 25, Gothreaux describes head 101 obtaining seawater for flushing via seawater intake line 102.

bacteria. The bacterial species described by Lin include Bacillus licheniformis and Bacillus subtilis.

Per claim 43, the volume of Gothreaux's tank system is about 20 gal (col 6 lines 17, 51), which is less than about 120 gallons.[2]

Per claims 44 - 45, Gothreaux describes a high level sensor 108, activation of which commences the treatment cycle which ultimately results in emptying of the holding tank through overboard discharge line 107 (col 5 line 56). Hence, the process of removing the flush water from the tank system is in response to determining that the flush water volume has reached the high level sensor mark 108, and ceases upon the volume being lowered to the low level sensor level 109 (col 5 lines 57-60). Insofar as Gotheaux's system is reusable, the limitation of repeating steps (a) – (e) is met by Gothreaux (as modified by Lin).

Per claims 44, 46, 47 Gothreaux describes monitoring the time duration of the circulating period. After a predetermined time period, the flushing liquid is discharged overboard through discharge line 107 (col 5 lines 45-60). Per claim 47, in one embodiment, the treatment / recirculation period was 60 minutes and the settling period was 15 minutes, the total of which is less than 3 days.

Per claim 14, Lin's composition includes isopropyl alcohol (as a sanitizing agent) and water (Table 1, 4, 5).

The skilled artisan would appreciate that in the aircraft embodiment, col 3 line 17, flushing water would be provided onboard by means other than drawing seawater from the sea.

[2] The recitation in claim 43 of, "a capacity at most about 120 gallons," is taken to mean "a capacity not more than about 120 gallons," rather than "a maximum capacity of about 120 gallons." A tank system having a volume of 20 gallons would not meet the limitation of a tank system having "a maximum capacity of about 120 gallons" because 20 is not "about" 120.

Per claim 18, the recited "first flushing liquid" reads on the flushing liquid added to the holding tank prior to the next treatment cycle, whereas the "second flushing liquid" reads on the flush liquid first added to the holding tank 104 immediately after the holding tank contents has been discharged from the tank through discharge line 107..

Per claim 39, Lin's composition includes fragrance to mask undesired odors.

Claims 44 - 48 is rejected under 35 USC Sec. 112(2) for failing to particularly point out and distinctly claim the invention. It is unclear what, "to determine the flushing liquid should be removed" means. Further, step (e) refers to a "determining step." No such determining step could be found. Step (d) refers to a "monitoring" step, the purpose of which is "to determine the flushing liquid should be removed." It is unclear whether in step (e) the flushing liquid is removed in response to "the determining" step or in response to the "monitoring step."

Claims 46 - 48 are also objected to for minor informalities: It is grammatically improper to refer to a step as "a time basis" or as "a trip basis." It is suggested that claims 46 and 48 be amended to read, "wherein the monitoring step is based on time" and "wherein the monitoring step is based on the number of trips."

Claim 48 is allowable over the prior art, but objected to as being based on a rejected base claim. It would be allowable if amended to overcome any non-art

rejections and/or objections and re-written to include all limitations of the claims from which it depends directly and indirectly.

Claims 9 – 13, 15 – 16, 17, 19, 20 are allowable over the prior art, but objected to as being based on a rejected base claim. Lin describes formulation with "calcium carbonate" (col 6 line 6). This disclosure meets the claim 9 limitation of a filler because applicants themselves categorize calcium carbonate as a filler (see claim 19 (a)(i)) even though Lin refers to the same compound as an abrasive. Although Lin recognizes that beneficial microbes can compete with unwanted organisms for a common factor, such as food (col 10 line 42), Lin does not appear to describe a composition having bacteria, surfactant, filler, and a food source for bacteria. See Lin Table 4 and Table 5.

Claims 27 – 28 are allowed.

Claims 3 – 4 are allowed because it cannot be determined from Gothreaux and Lin whether the mass ratio of bacteria to surfactant is within the recited ranges. The bacterial concentration is specified, but the total volume of Lin's cleanser added to the Gothreaux device cannot be ascertained. Further, it is unclear from Gothreaux what the mass of the bacteria in the system is.

CHESTER T. BARRY
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